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REMARKS

Claims 1-4, 6, and 8-10 are pending in the subject application. Claims 1-3, 6, and 8 have been amended by the present amendment. In particular, independent claim 1 has been amended to recite an "irradiance distribution uniformizing means" configured by combining a cylindrical lens array and a condenser lens, and to recite that the second radiation means heats the base material without melting the base material. Claim 2 has been amended to recite the "aperture stop plate" and "objective lens" originally recited in claim 1. Claims 5, 7, 11, and 12 have been canceled without prejudice. The amendments are fully supported by the application as originally filed (see, e.g., specification at page 13, lines 15-20 and page 16, lines 12-15; FIGS. 1 and 2).

Applicants' claimed invention is directed to a crystal growth apparatus for radiating laser light on a semiconductor thin film, including: a first radiation means for selectively radiating first laser light to melt a target area of the semiconductor thin film; and a second radiation means for selectively radiating second laser light to heat a base material without melting the base material, where the second radiation means includes irradiance distribution uniformizing means configured by a combination of a cylindrical lens array and a condenser lens for adjusting the second laser light to provide uniform irradiance distribution.

By providing the Applicants' claimed "irradiance distribution uniformizing means," the base material and a crystallization target area of the semiconductor thin film are uniformly heated, which can increase a size of crystal grains (see, e.g., specification at page 13, lines 15-20 and page 17, line 15 to page 18, line 22).

Claims 1 and 2 were rejected under 35 USC 102(b) as anticipated by, or under 35 USC 103(a) as obvious over U.S. Patent Application Publication US 2003/0021307 to Yamazaki. Claims 1, 2, and 9 were rejected under 35 USC 102(e) as anticipated by, or under 35 USC 103(a) as obvious over U.S. Patent Application Publication US 2005/0035104 to Tanaka et al. ("Tanaka"). The remaining claims were rejected on combinations involving the above references. These rejections are respectfully traversed.

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Regarding the rejection of independent claim 1 over Yamazaki, on page 3 of the Office Action of 03/22/2006, paragraphs 0090-0094 of Yamazaki were cited allegedly for teaching the Applicants' claimed crystal growth apparatus.

However, Yamazaki does not teach or suggest a crystal growth apparatus in which a first radiation means selectively radiates first laser light sufficient to melt a crystallization target area of a semiconductor thin film, and a second radiation means selectively radiates second laser light to heat base material without melting the base material.

In Yamazaki, a plurality of optical systems 401, 402, and 403 are provided for superimposing laser beams on an irradiated surface "to obtain an energy density required for a laser treatment and to eliminate the interference of light" (paragraph 0090 of Yamazaki).

However, there is no teaching or suggestion of separate first and second radiation means, where the first radiation means melts a crystallization target area, and the second radiation means heats but does not melt a base material of the crystallization target area.

Although Yamazaki discloses that laser beams from the first and third optical systems can be superimposed "to obtain an energy density required for a laser treatment," there is no teaching or suggestion of the claimed second radiation means which heats without melting the base material, as recited in claim 1.

Moreover, Yamazaki does not teach or suggest a second radiation means including an "irradiance distribution uniformizing means" having a cylindrical lens array and a condenser lens for adjusting second laser light such that second laser light is uniformly irradiated.

For at least the reasons discussed above, the Yamazaki reference does not anticipate or otherwise render obvious the Applicants' claimed invention.

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Regarding the rejection of independent claim 1 over Tanaka, on page 4 of the Office Action of 03/22/2006, paragraphs 0063 to 0070 of Tanaka were cited allegedly for teaching the Applicants' claimed crystal growth apparatus.

In Tanaka, lasers 101a and 101b each emit laser light, which is expanded and divided by mirrors, such that it is focused on an irradiation object 108 (see FIG. 1 and paragraphs 0063 to 0070 of Tanaka). As described in paragraph 0068 of Tanaka: "laser beams having different energy distributions are synthesized on the irradiation surface or in the vicinity thereof."

However, Tanaka does not teach or suggest separate first and second radiation means, where the first radiation means melts a crystallization target area, and the second radiation means heats but does not melt a base material of the crystallization target area.

Moreover, Tanaka does not teach or suggest a second radiation means including an "irradiance distribution uniformizing means" having a cylindrical lens array and a condenser lens for adjusting second laser light such that second laser light is uniformly irradiated.

For at least the reasons discussed above, the Tanaka reference does not anticipate or otherwise render obvious the Applicants' claimed invention.

It is believed the application is in condition for immediate allowance, which action is earnestly solicited.

Respectfully submitted,

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By: 

Steven M. Jensen
(Reg. No. 42,693)

Phone: (617) 439-4444

Customer No. 21874

Edwards Angell Palmer & Dodge
P.O. Box 55874
Boston, MA 02205